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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* PIERRE HOLZSCHUH,  
GEORG BUCH, and JEAN-JACQUES WEILAND

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Appeal 2009-0010304  
Application 10/765,123  
Technology Center 1700

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Decided: December 18, 2009

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Before EDWARD C. KIMLIN, CHARLES F. WARREN, and  
MARK NAGUMO, *Administrative Patent Judges*.

NAGUMO, *Administrative Patent Judge*.

DECISION ON APPEAL

A. Introduction<sup>1, 2</sup>

Pierre Holzschuh, Georg Buch, and Jean-Jacques Weiland (“Holzschuh”) timely appeal under 35 U.S.C. § 134(a) from the final rejection<sup>3</sup> of claims 1, 2, 4-15, and 17-24. We have jurisdiction under 35 U.S.C. § 6. We AFFIRM-IN-PART.

The subject matter on appeal relates to processes for producing “liquid smoke” intended for the preservation and flavoring of foods. The claimed process is said to yield products low in polyaromatic hydrocarbons such as benzopyrene and benzoanthracene, which are characteristic of high-temperature pyrolysis methods. These goals are achieved by conducting the destructive distillation of wood in a hermetically sealed chamber into which vegetable matter (e.g., wood chips) are introduced via an electrically heated conveying screw. The smoke products are collected from the far end of the screw.

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<sup>1</sup> Application 10/765,123, *Process for the Production of Alimentary Smoke by Pyrolysis, the Use of Means Particularly Adapted to Said Process, Smoke and Smoked Foodstuffs Obtained*, filed 28 January 2004, claiming the benefit of a provisional application filed 1 April 2003. The specification is referred to as the “123 Specification,” and is cited as “Spec.” The real party in interest is listed as Sofral Société Française D’Alimentation S.A.. (Appeal Brief, filed 18 August 2008 (“Br.”), 1.)

<sup>2</sup> Heard 10 December 2009. The Official Transcript, which was not available when this Opinion was entered, will be made of record.

<sup>3</sup> Office Action mailed 18 January 2008 (“Final Rejection”; cited as “FR”).

Representative Claim 1 is reproduced from the Claims Appendix to the Principal Brief on Appeal:

1. A process for the production of a smoke product, said smoke product being obtained by pyrolysis of an organic material, wherein said process comprises the steps of:

- introducing said organic material to be pyrolyzed in a pyrolysis reactor comprising
  - a substantially hermetically sealed heatable chamber containing
    - at least one rotatable heated endless screw, wherein said heated rotatable screw comprises
      - a heating device that supplies calories to elevate the temperature of the organic material
  - said material being introduced at one end of said at least one screw,
- heating said organic material in said chamber to a temperature between 300°C and 400°C to pyrolyze said organic material and
  - said organic material moves through said heatable chamber under the influence of rotation of said at least one screw, and
- removing the consumed organic material and recovering the produced smoke from the other end of said at least one screw.

(Claims App., Br. 25; indentation and paragraphing added.)

Claim 13 covers a liquid smoke product obtained by the process of claim 1, and claims 14 and 15 depend from claim 13. (Claims App., Br. 27.)

Claim 17 is similar to claim 1, requiring the heated screw to heat the organic material to a temperature of 300°C to 380°C for pyrolysis. (Claims App., Br. 28.)

Claim 18 is similar to claim 1, and requires further that the screw be heated by passage of an electrical current. (Claims App., Br. 29.)

Claim 19 is similar to claims 1 (temperature range) and 18 (electrically heated screw), and requires further that the volume content of benzopyrene and benzoanthracene be below certain limits. Claim 19 does not specify “recovering the produced smoke from the other end of said at least one screw.”

The Examiner has maintained the following grounds of rejection:<sup>4</sup>

A. Claims 1, 2, 4, 6-15, 18-21, 23, and 24 stand rejected under 35 U.S.C. § 103(a) in view of the combined teachings of Underwood,<sup>5</sup> Lepez,<sup>6</sup> and Weissman.<sup>7</sup>

B. Claims 5 and 22 stand rejected under 35 U.S.C. § 103(a) in view of the combined teachings of Underwood, Lepez, and Weissman, and Wistreich.<sup>8</sup>

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<sup>4</sup> Examiner’s Answer mailed 10 November 2008. (“Ans.”). The Examiner withdrew a rejection under 35 U.S.C. § 112(2). (Ans. 3.)

<sup>5</sup> Gary Underwood and Robert G. Graham, *Methods of Using Fast Pyrolysis Liquids as Liquid Smoke*, U.S. Patent 4,876,108 (1989).

<sup>6</sup> Olivier Lepez and Philippe Sajet, *Solid or Liquid Product Thermal Treatment and Mixing Device*, FR 2775621 (1999) (USPTO translation).

<sup>7</sup> David Weissman, *Smoke Generator*, U.S. Patent 3,012,124 (1961).

<sup>8</sup> Hugo E. Wistreich and Hyuil Juhn, *Liquid Smoke and Method for Manufacture*, U.S. Patent 3,875,314 (1975).

C. Claims 1, 17, and 18 stand rejected<sup>9</sup> under 35 U.S.C. § 103(a) in view of the combined teachings of Gruhl<sup>10</sup> and Lepez.

B. Discussion

As the Appellant, Holzschuh bears the procedural burden of showing harmful error in the Examiner's rejections. *See, e.g., In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006) ("On appeal to the Board, an applicant can overcome a rejection [under § 103] by showing insufficient evidence of *prima facie* obviousness") (citation and internal quote omitted). Arguments not timely raised have been waived. 37 C.F.R. § 41.37(c)(1)(vii), second sentence.

Rejections A and B, based on Underwood and other References

Holzschuh contends the Examiner erred because, according to Holzschuh, the screw conveyers taught by Lepez or Weissman require low temperatures and an air supply, whereas the flash pyrolysis device and processes taught by Underwood require high temperatures in an oxygen-starved environment. (Br. 10-12.) Thus, Holzschuh argues, the combination would destroy or render the apparatus of Underwood inoperable. Moreover, in Holzschuh's view, neither Lepez nor Weissman cure the lack in Underwood of a teaching or suggestion of conducting pyrolysis between 300°C and 400°C, or of recovering the smoke from the other end of the conveying screw.

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<sup>9</sup> The Examiner withdrew the rejection of claim 19. (Ans. 4,)

<sup>10</sup> S. Gruhl et al., *Carbon-Based Catalyst Useful in Gas-Solid Reactions*, U.S. Patent 4,992,404 (1991).

Holzschuh's contentions do not establish harmful error in the Examiner's rejections. The Examiner is not suggesting, as Holzschuh appears to argue, that a person having ordinary skill in the art would have introduced the entire apparatus and conditions taught by Lepez or Weissman into the apparatus and method of Underwood. Rather, we understand the Examiner to argue that it would have been obvious to use the electrically heated screws of the latter two references to introduce and transport the wood chips in the apparatus and under the conditions taught by Underwood. Holzschuh has not directed our attention to any credible evidence of record in support of the contention that the person having ordinary skill in the art would have thought the electrically heated screws to be operable only at the lower temperatures and with the air supply conditions taught by Lepez and Weissman.

Holzschuh's further argument that Weissman, although teaching introduction of wood chips at one end of the heated conveying screw, and removal of ash at the other, does not teach "recovering smoke at the location claimed" (Br. 12) mis-interprets the claims. Rejected independent claims 1 and 18 recite "recovering the produced smoke from the other end of said at least one screw," while independent claim 19 does not limit the location of smoke recovery in any way. Read broadly, in light of the specification, this limitation requires no more than that smoke produced from the "other end" of the screw be collected. The claim contains no structures or other limitations that require that smoke be collected only from the far (exit) end of the screw at the end of the chamber.

Holzschuh's remaining argument, that Underwood does not teach pyrolysis between 300°C and 400°C, does not address the Examiner's

finding that Underwood does teach pyrolysis at temperatures as low as 400°C (FR, para. bridging 2-3, citing the Underwood abstract; see also Underwood at col. 8, ll. 65-67, and at col. 11, ll. 5-6). Underwood's disclosure of the lower limit of 400°C corresponds to the recited upper limit of 400°C in the claimed process, and therefore this claim limitation is met.

We conclude Holzschuh has failed to prove harmful error in the Examiner's Rejection A, and we AFFIRM that rejection.

Holzschuh's traverse of Rejection B of claims 5 and 22 is based solely on the alleged failure of Wistreich to cure the deficiencies of Underwood, Lepez, and Weissman. Because we have determined the deficiencies identified by Holzschuh are not harmful, we also AFFIRM Rejection B.

Rejection C, based on Underwood and Lepez

Holzschuh argues that the Examiner erred in rejecting claims in view of Gruhl and Lepez, because Gruhl, which is concerned with pyrolyzing organic materials between 200 to 800°C to produce a solid carbon catalyst, and Lepez, which is concerned with roasting or drying foods at an unspecified temperature, do not teach or suggest methods of distilling wood at 300 to 400°C in a hermetically sealed chamber or of recovering the smoke from the other end of the heating and transporting screw.

The Examiner urges that it would have been obvious to select a pyrolysis temperature in the range of 300 to 400°C, which is within the range taught by Gruhl, and that it would have been obvious to hermetically seal the chamber "in order to prevent the escape of volatile products formed during the heating process." (FR 6, 5th para.)



The various steps of a process, whether in a claimed invention or described in the prior art, are carried out under particular conditions for particular reasons. The modification of the conditions under which a prior art process step is conducted, in order to have been obvious, must have a reason arising from the prior art or from the “common sense” of those skilled in the art. Thus, in an obviousness rejection, the prior art must provide a reference process as well as evidence that the modifications necessary to obtain the claimed process would have been obvious. (*Cf.* the role of the requirement, under some circumstances, that the prior art provide a “lead compound” when considering the obviousness of a chemical compound, discussed in *Takeda Chem. Indus., Ltd. v. Alphapharm Pty., Ltd.*, 492 F.3d 1350, 1356-57 (Fed. Cir. 2007)).

In the present case, Gruhl is concerned with the production, by pyrolysis, of a solid carbon catalyst from organic substances. Thus, Gruhl is concerned with what Lepez regards as ash, a waste product. The only concern Gruhl expresses for the gaseous products—a concern the Examiner does not even mention—is the possible recycling of those products for combustion to recover energy. (Gruhl, col. 2, ll. 23-25.)

Lepez teaches drying and roasting of foodstuffs in a chamber using a screw for both moving and mixing the products as well as for heating them. The Examiner has not directed our attention to teachings or suggestions in Lepez of producing and collecting smoke or smoke products from organic materials.

Thus, on the present record, neither reference is sufficiently concerned with the claimed process of producing smoke products such that further modifications, such as the selection of a temperature to produce smoke, is

reasonably grounded in the references. Put another way, the Examiner has failed to explain why a person having ordinary skill in the art would have modified either Gruhl or Lepez in ways necessary to meet the claimed process.

D. Order

We AFFIRM the rejection of claims 1, 2, 4, 6-15, 18-21, 23, and 24 under 35 U.S.C. § 103(a) in view of the combined teachings of Underwood, Lepez, and Weissman.

We AFFIRM the rejection of claims 5 and 22 under 35 U.S.C. § 103(a) in view of the combined teachings of Underwood, Lepez, and Weissman, and Wistreich.

We REVERSE the rejection of claims 1, 17, and 18 under 35 U.S.C. § 103(a) in view of the combined teachings of Gruhl and Lepez.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

kmm

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